

FIG. 1

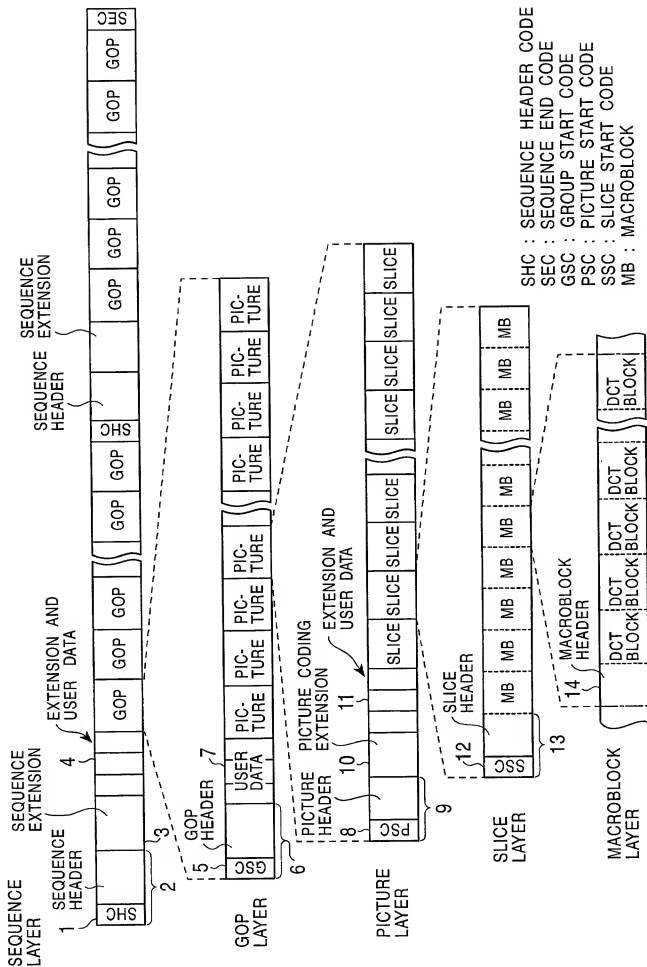


FIG. 2

CODE	NUMBER OF BITS	DESCRIPTION
sequence header code	32	SEQUENCE HEADER CODE
horizontal size value	12	LOWER 12 BITS OF THE NUMBER OF HORIZONTAL PIXELS
vertical size value	12	LOWER 12 BITS OF THE NUMBER OF VERTICAL LINES
aspect ratio information	4	PIXEL ASPECT RATIO INFORMATION
frame rate code	4	FRAME RATE CODE
bit rate value	18	LOWER 18 BITS OF BIT RATE (FOR UNITS OF 400 BITS)
vbv buffer size value	10	LOWER 10 BITS OF VBV BUFFER SIZE
intra quantiser matrix [64]	8*64	INTRA MB QUANTIZER MATRIX VALUE
non intra quantiser matrix [64]	8*64	NON-INTRA MB QUANTIZER MATRIX VALUE

FIG. 3

CODE	NUMBER OF BITS	DESCRIPTION
extension start code	32	START SYNCHRONIZATION CODE OF EXTENSION DATA
extension start code identifier	4	INDICATES WHICH EXTENSION DATA IS TRANSMITTED
profile and level indication	8	INDICATION OF PROFILE AND LEVEL
progressive sequence	1	INDICATES PROGRESSIVE SCAN
chroma format	2	CHROMA FORMAT SETTING
horizontal size extension	2	UPPER 2 BITS OF THE NUMBER OF HORIZONTAL PIXELS OF PICTURE
vertical size extension	2	UPPER 2 BITS OF THE NUMBER OF VERTICAL LINES OF PICTURE
bit rate extension	12	UPPER 12 BITS OF BIT RATE VALUE
marker bit	1	PREVENTS START CODE EMULATION
vbv buffer size extension	8	UPPER 8 BITS OF VBV BUFFER SIZE
low delay	1	INDICATING THAT B-PICTURE IS NOT INCLUDED
frame rate extension n	2	FRAME RATE EXTENSION
frame rate extension d	5	FRAME RATE EXTENSION
next start code ( )		

FIG. 4

CODE	NUMBER OF BITS	DESCRIPTION
extension data (0)		EXTENSION DATA (0)
sequence display extension ( )		SEQUENCE DISPLAY ( )
sequence scalable extension ( )		SEQUENCE SCALABLE EXTENSION ( )
extension start code identifier	4	SEQUENCE SCALABLE EXTENSION ID
scalable mode	2	SCALABILITY MODE
layer id	4	LAYER ID OF SCALABLE LAYER
FOR SPATIAL SCALABILITY		
lower layer prediction horizontal size	14	HORIZONTAL SIZE OF LOWER LAYER PREDICTION
lower layer prediction vertical size	14	VERTICAL SIZE OF LOWER LAYER PREDICTION
vertical subsampling factor n	5	VERTICAL UPSAMPLING FACTOR
FOR TEMPORAL SCALABILITY		
picture mux order	3	THE NUMBER OF ADDED LAYER PICTURES BEFORE FIRST BASE LAYER PICTURE
picture mux factor	3	THE NUMBER OF ADDED LAYER PICTURES BETWEEN BASE LAYERS
user data ( )		USER DATA ( )
user data	8	USER DATA

FIG. 5

CODE	NUMBER OF BITS	DESCRIPTION
group start code	32	GOP START CODE
time code	25	TIME CODE (HOUR, MINUTE, SECOND, PICTURE)
closed gop	1	FLAG INDICATING INDEPENDENCY OF GOP
broken link	1	VALIDITY FLAG OF B-PICTURE BEFORE I-PICTURE IN GOP

FIG. 6

CODE	NUMBER OF BITS	DESCRIPTION
extension data (1)		EXTENSION DATA (1)
user data ( )		USER DATA ( )
user data	8	USER DATA

FIG. 7

CODE	NUMBER OF BITS	DESCRIPTION
picture start code	32	PICTURE START CODE
temporal reference	10	DISPLAY ORDER OF PICTURES IN GOP (modulo 1024)
picture coding type	3	PICTURE-CODING TYPE (I, B, P)
vbv delay	16	AMOUNT OF VBV DELAY UNTIL DECODING STARTS

FIG. 8

CODE	NUMBER OF BITS	DESCRIPTION
f code [s] [t]	4	RANGE OF MOTION VECTORS IN FORWARD AND BACKWARD DIRECTIONS (s), AND HORIZONTAL AND VERTICAL DIRECTIONS (t)
intra dc precision	2	DC COEFFICIENT PRECISION OF INTRA MB
picture structure	2	PICTURE STRUCTURE (FRAME, FIELD)
top field first	1	DISPLAY FIELD SETTING
frame pred frame dct	1	FRAME PREDICTION + FRAME DCT FLAG
concealment motion vectors	1	INTRA MB CONCEALMENT MV FLAG
q scale type	1	QUANTIZER SCALE TYPE (LINEAR, NON-LINEAR)
intra vlc format	1	INTRA MB VLC TYPE
alternate scan	1	SCANNING TYPE (ZIGZAG, ALTERNATE)
repeat first field	1	2:3 PULL-DOWN FIELD REPEAT
chroma 420 type	1	SAME VALUE AS progressive frame IN 4:2:0
progressive frame	1	PROGRESSIVE FRAME FLAG

FIG. 9

CODE	NUMBER OF BITS	DESCRIPTION
extension data (2)		EXTENSION DATA (2)
quant matrix extension ( )		QUANTIZER MATRIX EXTENSION ( )
intra quantiser matrix [64]	8*64	INTRA MB QUANTIZER MATRIX
non intra quantiser matrix [64]	8*64	NON-INTRA MB QUANTIZER MATRIX
chroma intra quantiser matrix [64]	8*64	CHROMA INTRA QUANTIZER MATRIX
chroma non intra quantiser matrix [64]	8*64	CHROMA NON-INTRA QUANTIZER MATRIX
copyright extension ( )		COPYRIGHT EXTENSION ( )
picture display extension ( )		PICTURE DISPLAY EXTENSION ( )
picture spatial scalable extension ( )		PICTURE SPATIAL SCALABLE EXTENSION ( )
spatial temporal weight code table index	2	UPSAMPLING SPATIAL TEMPORAL WEIGHT CODE TABLE
lower layer progressive frame	1	LOWER LAYER PROGRESSIVE IMAGE FLAG
lower layer deinterlaced field select	1	LOWER LAYER FIELD SELECTION
picture temporal scalable extension ( )		PICTURE TEMPORAL SCALABLE EXTENSION ( )
reference select code	2	SELECTION OF REFERENCE IMAGE
forward temporal reference	10	PICTURE NUMBER OF FORWARD PREDICTIVE LOWER LAYER
backward temporal reference	10	PICTURE NUMBER OF BACKWARD PREDICTIVE LOWER LAYER
user data ( )		USER DATA ( )
user data ( )	8	USER DATA



FIG. 10

CODE	NUMBER OF BITS	DESCRIPTION
slice start code	32	SLICE START CODE + SLICE VERTICAL POSITION
slice vertical position extension	3	SLICE VERTICAL POSITION EXTENSION (>2800 LINES)
priority breakpoint	7	DATA PARTITIONING BREAKPOINT
quantiser scale code	5	QUANTIZER SCALE CODES (1 to 31)
intra slice	1	INTRA SLICE FLAG
macroblock ( )		MACROBLOCK DATA ( )

FIG. 11

CODE	NUMBER OF BITS	DESCRIPTION
macroblock escape	11	MB ADDRESS EXTENSION (>33)
macroblock address increment	1 - 11	DIFFERENCE BETWEEN CURRENT MB ADDRESS AND PREVIOUS MB ADDRESS
macroblock modes ( )		MACROBLOCK MODE ( )
macroblock type	1 - 9	MB CODING TYPE (MC, Coded, etc.)
spatial temporal weight code	2	UPSAMPLING SPATIAL TEMPORAL WEIGHT CODE
frame motion type	2	MOTION COMPENSATION TYPE FOR FRAME STRUCTURE
field motion type	2	MOTION COMPENSATION TYPE FOR FIELD STRUCTURE
dct type	1	DCT TYPE (FRAME, FIELD)
quantiser scale code	5	MB QUANTIZER SCALE CODES (1 to 31)
motion vectors (s)		MOTION VECTORS (s)
motion vertical field select [r] [s]	1	SELECTION OF REFERENCE FIELD FOR PREDICTION
motion vector (r, s)		MOTION VECTOR (r, s)
motion code [r] [s] [f]	1 - 11	FUNDAMENTAL DIFFERENTIAL MOTION VECTOR
motion residual [r] [s] [f]	1 - 8	RESIDUAL DIFFERENTIAL VECTOR
dmvector [f]	1 - 2	DUAL PRIMING DIFFERENTIAL VECTOR
coded block pattern ( )		CBP
block (i)		BLOCK DATA ( )

FIG. 12

CODE	NUMBER OF BITS	DESCRIPTION
dct dc size luminance	2 - 9	DCT LUMINANCE DC COEFFICIENT DIFFERENTIAL SIZE
dct dc differential	1 - 11	DCT LUMINANCE DC COEFFICIENT DIFFERENTIAL VALUE
dct dc size chrominance	2 - 10	DCT CHROMINANCE DC COEFFICIENT DIFFERENTIAL SIZE
dct dc differential	1 - 11	DCT CHROMINANCE DC COEFFICIENT DIFFERENTIAL VALUE
First DCT coefficient	3 - 24	FIRST NON-ZERO COEFFICIENT OF NON-INTRA BLOCK
Subsequent DCT coefficient	2 - 24	SUBSEQUENT DCT COEFFICIENT
End of block	2 or 4	FLAG INDICATING END OF DCT COEFFICIENT IN BLOCK

FIG. 13A

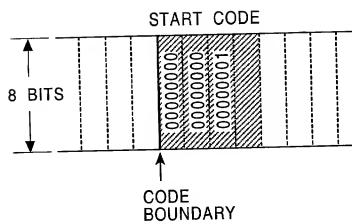


FIG. 13B

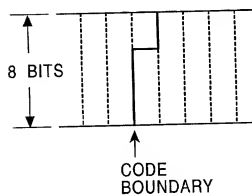


FIG. 14

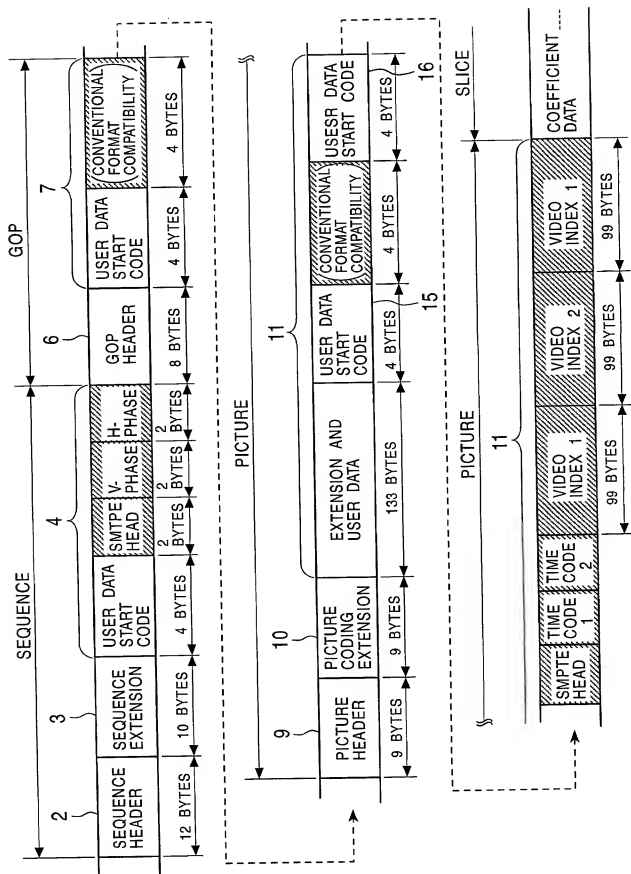
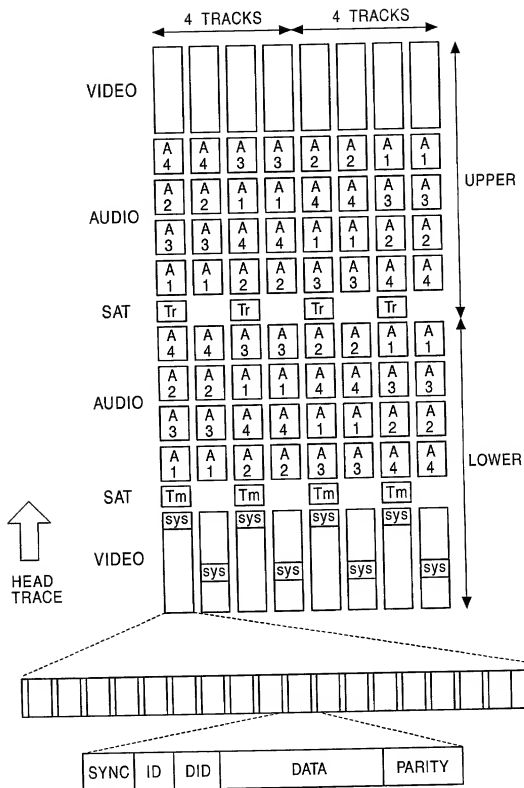




FIG. 16



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FIG. 17A

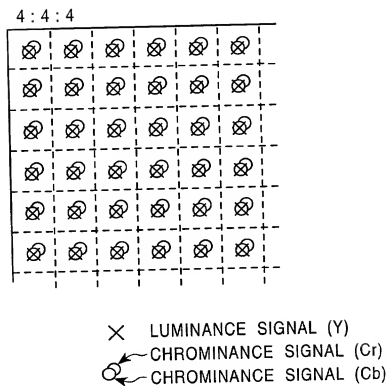


FIG. 17B

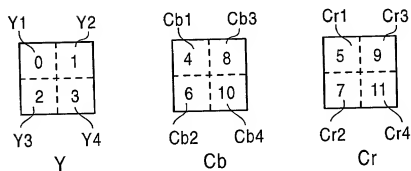




FIG. 18A

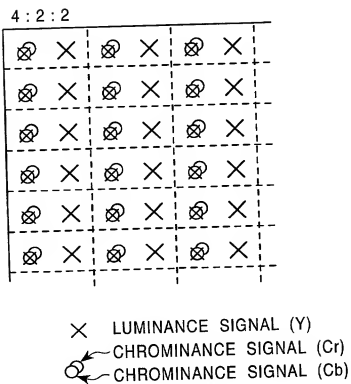


FIG. 18B

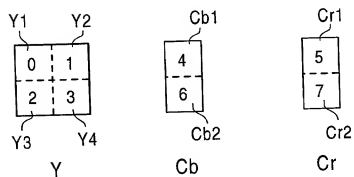


FIG. 19A

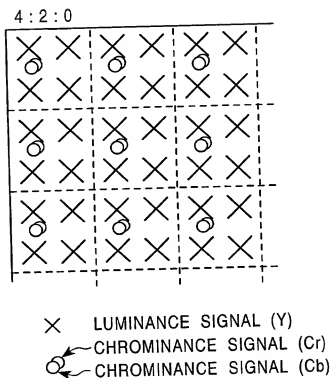


FIG. 19B

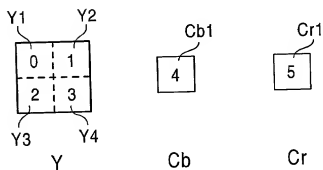


FIG. 20A

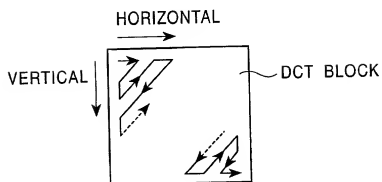


FIG. 20B

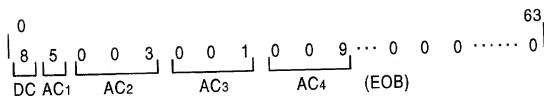


FIG. 21A

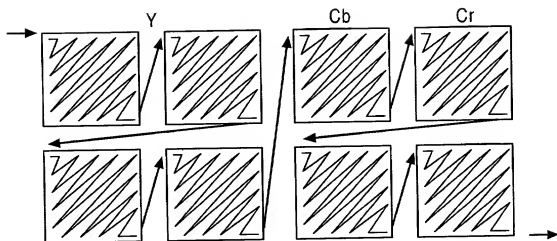


FIG. 21B

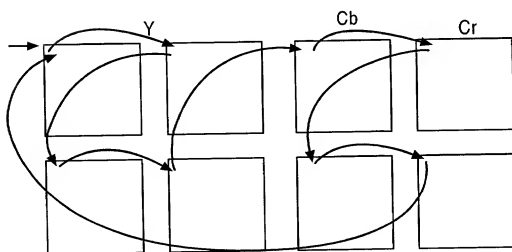


FIG. 22A

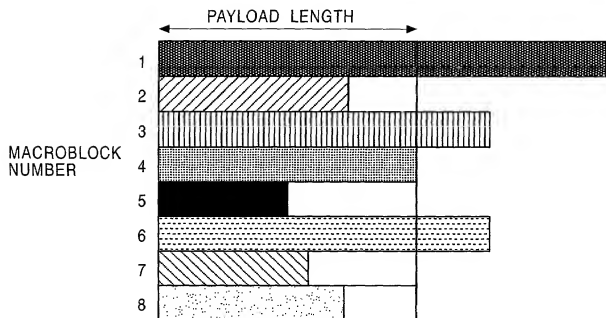


FIG. 22B

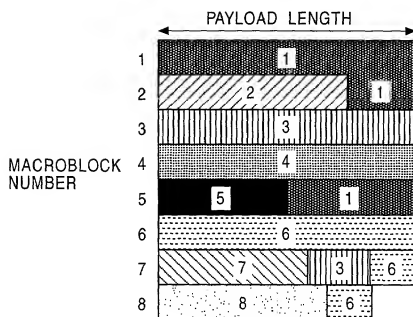


FIG. 23A

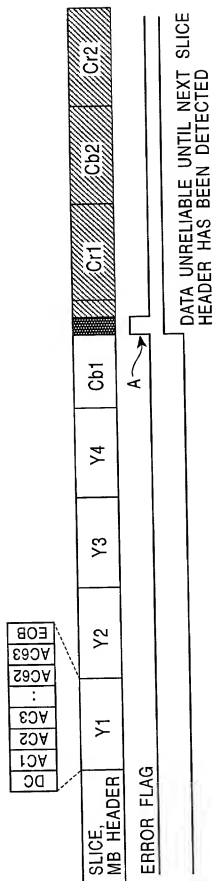


FIG. 23B

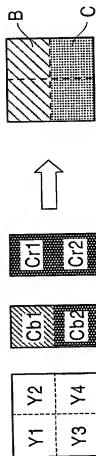


FIG. 24A

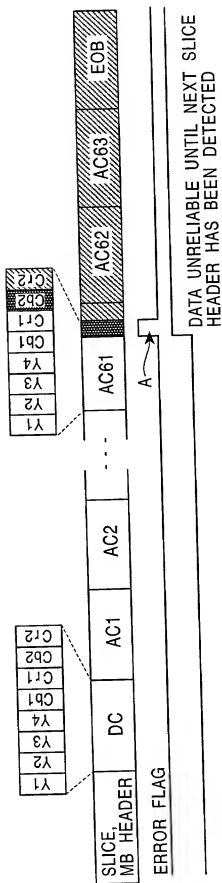


FIG. 24B

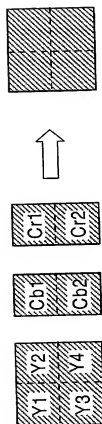
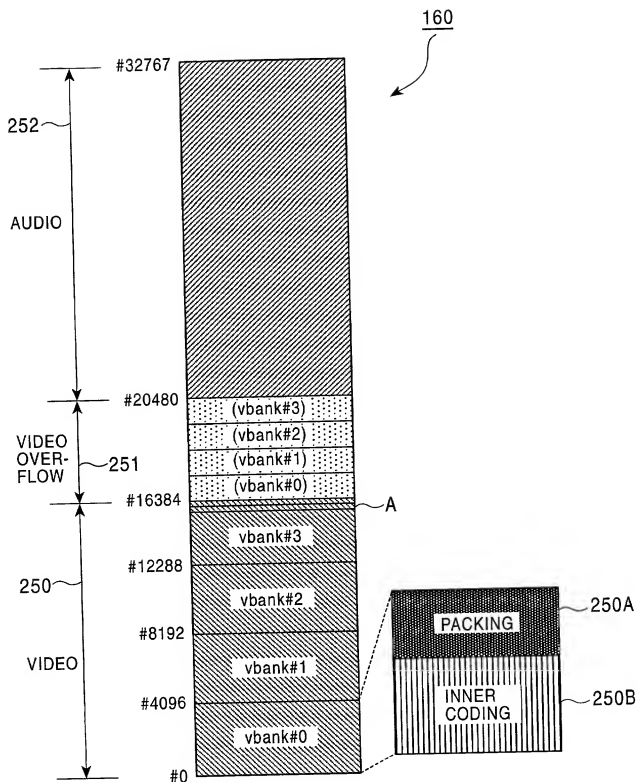






FIG. 26



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FIG. 27A

(0,0)	(0,1)	(0,2)	(0,3)	(0,4)	...	(0,40)	(0,41)	(0,42)	(0,43)	(0,44)
(1,0)	(1,1)	(1,2)	(1,3)	(1,4)		(1,40)	(1,41)	(1,42)	(1,43)	(1,44)
(2,0)	(2,1)	(2,2)	(2,3)	(2,4)	...	(2,40)	(2,41)	(2,42)	(2,43)	(2,44)
(3,0)	(3,1)	(3,2)	(3,3)	(3,4)		(3,40)	(3,41)	(3,42)	(3,43)	(3,44)
(4,0)	(4,1)	(4,2)	(4,3)	(4,4)		(4,40)	(4,41)	(4,42)	(4,43)	(4,44)
⋮						⋮				
(36,0)	(36,1)	(36,2)	(36,3)	(36,4)	...	(36,40)	(36,41)	(36,42)	(36,43)	(36,44)
(37,0)	(37,1)	(37,2)	(37,3)	(37,4)		(37,40)	(37,41)	(37,42)	(37,43)	(37,44)

FIG. 27B

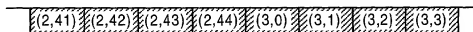


FIG. 27C

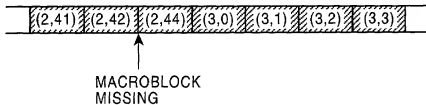


FIG. 27D

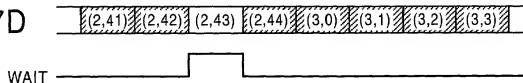


FIG. 28

ITEM	VALUE	CONTENT
slice_start_code	32'h00_00_01_03	(03 IS CREATED FROM mb_row ON SCREEN)
quantizer_scale_code	5'b1 0000	
extra_bit_slice	1'b0	(CREATED FROM mb_column ON SCREEN)
macroblock_escape	11'b0000_0001_000	
macroblock_address_increment	8'b0000_1010	(CREATED FROM mb_column ON SCREEN)
macroblock_type	1'b1	
dct_type	1'b1	Y1 DC
dct_dc_size_luminance	3'b100	
eob	4'b0110	Y2 DC
dct_dc_size_luminance	3'b100	
eob	4'b0110	Y3 DC
dct_dc_size_luminance	3'b100	
eob	4'b0110	Y4 DC
dct_dc_size_luminance	3'b100	
eob	4'b0110	Cb1 DC
dct_dc_size_chrominance	2'b00	
eob	4'b0110	Cr1 DC
dct_dc_size_chrominance	2'b00	
eob	4'b0110	Cb2 DC
dct_dc_size_chrominance	2'b00	
eob	4'b0110	Cr2 DC
ct_dc_size_chrominance	2'b00	
eob	4'b0110	

FIG. 29A

(0,0)	(0,1)	(0,2)	(0,3)	(0,4)		(0,40)	(0,41)	(0,42)	(0,43)	(0,44)
(1,0)	(1,1)	(1,2)	(1,3)	(1,4)		(1,40)	(1,41)	(1,42)	(1,43)	(1,44)
(2,0)	(2,1)	(2,2)	(2,3)	(2,4)	...	(2,40)	(2,41)	(2,42)	(2,43)	(2,44)
(3,0)	(3,1)	(3,2)	(3,3)	(3,4)		(3,40)	(3,41)	(3,42)	(3,43)	(3,44)
(4,0)	(4,1)	(4,2)	(4,3)	(4,4)		(4,40)	(4,41)	(4,42)	(4,43)	(4,44)
⋮						⋮				
(36,0)	(36,1)	(36,2)	(36,3)	(36,4)	...	(36,40)	(36,41)	(36,42)	(36,43)	(36,44)
(37,0)	(37,1)	(37,2)	(37,3)	(37,4)		(37,40)	(37,41)	(37,42)	(37,43)	(37,44)

FIG. 29B

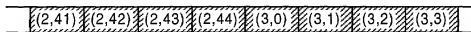


FIG. 29C

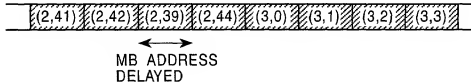


FIG. 29D

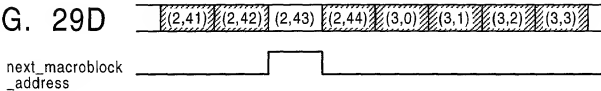


FIG. 30

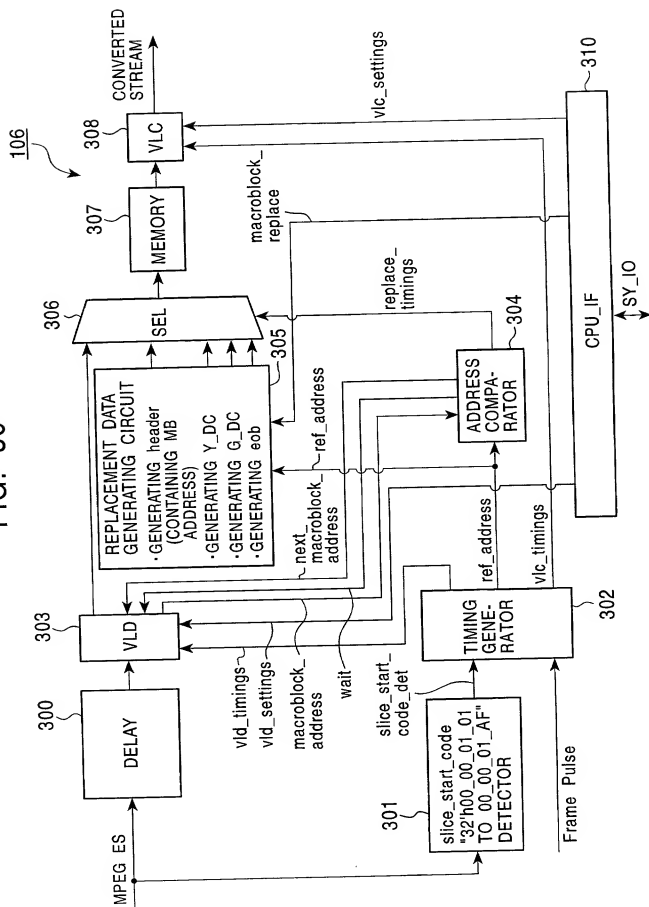


FIG. 31

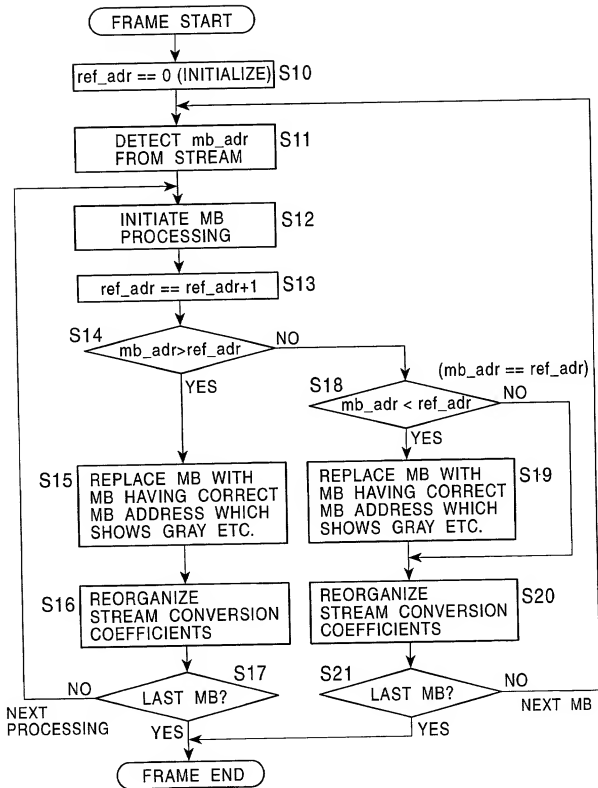


FIG. 32A

(0,0)	(0,1)	(0,2)	(0,3)	(0,4)		(0,40)	(0,41)	(0,42)	(0,43)	(0,44)
(1,0)	(1,1)	(1,2)	(1,3)	(1,4)		(1,40)	(1,41)	(1,42)	(1,43)	(1,44)
(2,0)	(2,1)	(2,2)	(2,3)	(2,4)	...	(2,40)	(2,41)	(2,42)	(2,43)	(2,44)
(3,0)	(3,1)	(3,2)	(3,3)	(3,4)		(3,40)	(3,41)	(3,42)	(3,43)	(3,44)
(4,0)	(4,1)	(4,2)	(4,3)	(4,4)		(4,40)	(4,41)	(4,42)	(4,43)	(4,44)
		⋮						⋮		
(36,0)	(36,1)	(36,2)	(36,3)	(36,4)	...	(36,40)	(36,41)	(36,42)	(36,43)	(36,44)
(37,0)	(37,1)	(37,2)	(37,3)	(37,4)		(37,40)	(37,41)	(37,42)	(37,43)	(37,44)

FIG. 32B

(2,41)	(2,42)	(2,43)	(2,44)	(3,0)	(3,1)	(3,2)	(3,3)
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FIG. 32C

(2,41)	(2,42)	(2,44)	(3,0)	(3,1)	(3,2)	(3,3)
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↑  
MACROBLOCK  
MISSING